YORK® SOLUTION® AIR-HANDLING UNITS

Design without limits

YORK®

BY JOHNSON CONTROLS

Solution® air-handling units experience and flexibility

We've built Solution units for all types of commercial, institutional, and industrial facitlities.

Names you know and trust

YORK® Solution® air-handling units (AHUs) by Johnson Controls – the only names you need to know for an AHU line that has no limits, ranging from basic indoor units up to penthouse mechanical-equipment rooms. And whatever the air-handling challenge – IAQ, acoustics, energy, controls, you name it –Johnson Controls has the experience to build a Solution AHU that will meet your needs.

In the air-handling business, the reputation and experience of the manufacturer is as important as the product. Johnson Controls has been manufacturing air-handling equipment since the 1950s. Then, in the 1990s, we acquired two of the most well-known and respected AHU companies in the business: the PACE Company and the Miller-Picking Corporation. Their 100-plus years of experience have now been joined with the worldwide engineering, manufacturing, service, and support of Johnson Controls, a Fortune 80 firm with a 125-year legacy in HVACR technology. The result is a company dedicated to providing uncompromising solutions for your air-handling needs.

For commercial and institutional facilities, for industrial manufacturing and process operations, and for critical hygienic applications in hospitals and cleanrooms, Solution AHUs can be built to handle any requirement – no limits.

Design it your way, every time, every way

Dimensional flexibility: Space constraints are a reality on most construction projects. Why be constrained by fixed AHU sizes? Solution AHUs offer variable aspect-ratio, so you can design the unit to fit the application and the space. And if rectangular-shaped units can't fit the space, units can be configured to fit within just about any existing space or around any obstacle. L-shaped and T-shaped units, stacked units, notched units – we can do it.

Material flexibility: We offer a complete line of construction materials, including G-90 galvanized steel, pre-painted steel, stainless steel, and aluminum.

Component flexibility: To enable you to meet any AHU requirement, Solution units offer every available air-handling component. And as technology creates new capabilities, Johnson Controls will apply these to our Solution line.

EXPERIENCE? WE'VE BUILT AHUs FOR ALL THESE

- Commercial space: office buildings, theaters, performance halls
- Institutional space: schools, universities, churches
- Industrial manufacturing: automotive, aerospace, chemical, petrochemical
- Hygienic systems: hospitals, life sciences, R&D facilities, food processing, cleanrooms
- Process manufacturing: pharmaceutical, electronics, semiconductor

The smart way to raise your IAQ

Superior casing performance

Because indoor air quality (IAQ) is now vital to your project's success, your AHU's performance is absolutely critical. That's why Solution AHUs offer advanced features that can meet any IAQ challenge you face. It all begins with casing performance. Casing leakage can deteriorate the quality of the air supplied to the occupants by allowing dirty,unfiltered air to leak into the airstream downstream of the filters. To minimize leakage, all Solution AHUs employ superior casing construction. As a minimum, air leakage is limited to a miniscule 1% at ±8" w.g. If needed, the leakage can be limited to only 0.5% at as high a design pressure as required.

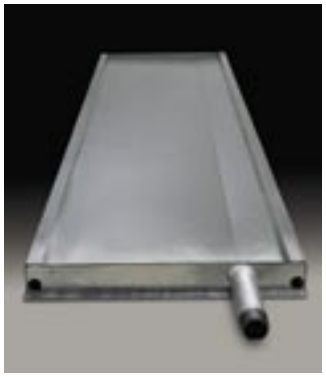
Filter out impurities

A complete line of filters is available for all Solution AHUs. For light- or prefiltering duty, use our pleated and extended-surface filters. For more stringent requirements, 60% to 95% efficient rigid or bag filters can be specified. HEPA filters are available to trap particles as small as 0.3 microns with 99.97% effectiveness. Ultra-HEPA filters can remove particles as small as 0.1 microns. Activated-carbon filters are excellent at removing odors and volatile-organic compounds from the airstream.

A complete line of filters is available, including pleated, rigid, bag, HEPA and carbon.

Hygienic drain-pan design

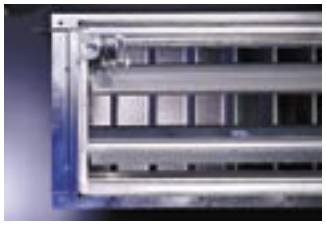
Micro-organisms can flourish in drain pans when cooling-coil condensate remains there during "off" or "heating" cycles. Solution AHUs move that condensate out of the unit with multi-sloped drain pans that ensure positive drainage. All pan designs also offer accessibility for periodic cleaning, now required by ASHRAE Standard 62-2001.



Multi-sloped drain pans ensure positive drainage.

Ensure adequate ventilation

An adequate supply of ventilation air is critical for the health of facility occupants. However, having to condition too much outside air can drive up energy costs. The solution is the AMS-60 damper, which incorporates an airflow-measuring station. The AMS-60 damper simultaneously measures and controls the volume of ventilation air, making sure it's neither too little nor too much.

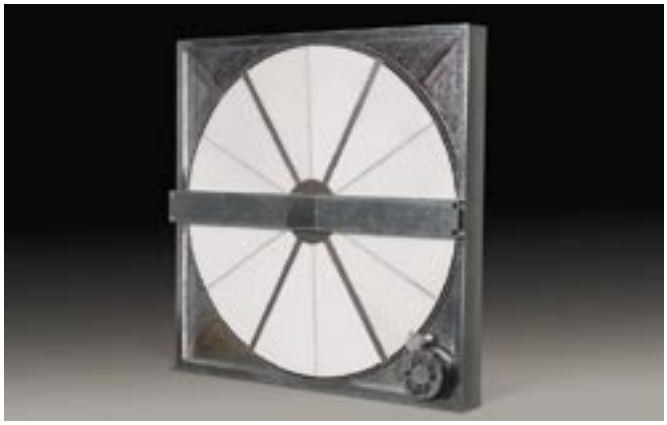


The AMS-60 damper measures and controls ventilation-air volume.

IAQ FEATURES TO HELP YOU CLEAR THE AIR

- Double-wall construction
- IAQ drain pans
- AMS-60 dampers
- Perforated liners
- Low-leak dampers
- P-cone fan monitoring
- All filter types (flat, angle, carbon, HEPA, etc)

Put your AHUs on an energy diet



Heat-recovery wheels reduce the cost of conditioning ventilation air.

Variable-speed drives offer dramatic fan-energy savings.

FEATURES THAT SAVE DOLLARS AND MAKE SENSE

- Variable-speed drives
- Heat wheels
- Fixed-plate heat exchangers
- Heat pipes
- High R-value insulation
- High-efficiency motors

Designed to save energy

Our industry has taken a leadership role by creating energy-performance guidelines, such as ASHRAE 90.1. Solution AHUs are designed with ASHRAE 90.1 in mind and can help you curb your energy intake.

Stretch your dollars with energy recovery

The exhaust airstream represents an energy-saving opportunity. An energy-recovery wheel can economically transfer heat and moisture between the exhaust-air and fresh-air paths, reducing the cost of conditioning the fresh air.

Take advantage of "free" cooling with an economizer section. During spring and fall operation, cool/dry outside air cools and dehumidifies the facility, reducing the need for mechanical refrigeration.

Keep heat where it belongs

Superior casing performance affects more than just indoor air quality. In extreme ambient conditions, heat transfer through the casing must be controlled. All Solution casings offer a minimum of R-7 to R-14 insulation in the floors, walls and roof. Higher R-value insulations are also available. To prevent energy-robbing air leaks, units are designed for a maximum casing leakage of 1%, or even 0.5%.

Reduce fan operating costs

In an AHU, the fan is the largest energy consumer. Solution fans offer a range of energy-saving options. High- or premium-efficiency motors can be specified. Direct-drive plenum fans eliminate belt-and-pulley energy losses.

If the air system is designed for variable-air volume VAV), Solution AHUs offer the most efficient method of VAV fan control. Factory-mounting a Johnson Controls variable-speed drive reduces jobsite labor costs and provides single-source responsibility.

Increase fans – decrease energy

Critical applications, such as life-science facilities or process operations, demand efficient and redundant air-handling operations. Solution AHUs meet this need by offering fan arrays ranging from 2 to 6 fans. When the fan array is optimized, the design can also increase efficiency by operating the fans at their most efficient points.

Reduce noise complaints

When noise matters
Applications such as theaters, performance halls and churches consider acoustics to be as critical as occupant comfort. That's why Solution AHUs ensure your success with a wide range of noise-reducing technologies that will quiet any complaint.

Fans that whisper
Since the fan is the primary moving part in an air-handling system, it's the first place to look when reducing noise. Solution AHUs are available with a variety of low-noise fans. Plenum fans generate less ductwork noise than do standard DWDI fans. Varying the number of blades in a fan wheel can also improve its sound characteristics.

Minimize vibration noise
Solution AHUs offer an array of construction and isolation techniques to help control vibration noise and its transmission. All fans are mounted on an isolated steel base. The entire fan assembly is dynamically balanced to ensure vibration-free operation. Direct-drive plenum fans can further reduce vibration by eliminating the belt-and-pulley mechanism.

Attenuate remaining sounds
What little noise is left can be further reduced with direct methods of sound attenuation. Using sound-absorbing walls, and sound traps in the fan and discharge-plenum sections, Johnson Controls sales engineers can design a Solution AHU to meet your critical sound requirements.

Tested sound levels
Being able to reliably predict the sound performance of an AHU is an engineering challenge. Our acousticians have created ARI-260-compliant, acoustical-calculation tools based on thousands of hours of real-world testing on hundreds of units.

Theatres, performance halls, and churches often consider acoustics as critical as occupant comfort.

Solution AHUs offer a variety of techniques to improve fan acoustics.

SOUND TECHNIQUES TO IMPROVE ACOUSTICS

- Standard low-noise fans
- Direct-drive plenum fans
- Vane-axial fans
- Sound attenuators
- Sound-absorptive panels
- Inertia bases
- Special balancing and vibration-isolation options

Take control of your application

Factory-mounted controls increase reliability

When AHU controls are installed at the jobsite, costs can go up and reliability can go down. To eliminate these problems, Solution AHUs can be equipped with Metasys® controls which are engineered, installed, and tested in the factory.

Solution AHUs can be equipped with factory-packaged Metasys controls.

Factory-testing ensures accurate operation

Factory-mounted Metasys controls undergo a detailed testing process at the factory. The testing ensures that all wiring is installed correctly, and that all control panels and end devices work appropriately before the AHU is shipped. It also means that Solution AHUs can be up-and-running faster when they arrive on-site.

Factory-testing ensures that all controls work appropriately.

Factory-engineering speeds field connections

Solution AHUs are factory-engineered to simplify field connection of the controls. For example, coil valves are shipped uninstalled, but pre-wired with a flexible conduit with quick-connects. In some instances, the AHU is too large to ship in one piece, and must be split. To ensure fast and easy jobsite assembly of the Metasys controls, labeled quick-connects come standard on all shipping splits.

Labeled, quick-connect wiring makes split units easy to reassemble.

Factory-installation improves quality, saves time

While a Solution AHU is being manufactured, Johnson Controls technicians can easily access all its segments. So, there are no accessibility problems to cramp the quality of the controls installation, which can occur on the jobsite. Also, all sensing probes have been pre-engineered to determine their best mounting location, ensuring accurate and reliable readings.

YOU ARE IN COMMAND WITH METASYS® CONTROLS

- Field equipment controllers
- Input/Output modules
- Damper actuators
- Differential-pressure sensors
- Temperature sensors
- Valves and actuators
- Static-pressure transducers
- Differential-pressure switches
- Fan start/stop relays
- Humidity sensors
- Variable-speed controls
- Safety switches/resets

Support when you need it

Johnson Controls has the experience and support you demand

To unburden specifiers from the time-consuming task of system layout, we employ powerful design tools. The System Selection Tool is available to all qualified systems designers to assist in the development of plans and specifications for standard HVAC equipment and controls. Systems contained in the tool provide the user with flow diagrams, points lists and sequence of operations. Additionally, the software provides an output to the YORKworks™ program, the design tool that configures the Solution AHU and prepares the necessary specifications, schedules and drawings. For highly complex configurations or performance requirements, a team of factory engineers are available to support our sales professionals.

Support after the sale

As assurance that your Solution AHUs will meet your performance expectations, Johnson Controls offers validation- and witness-testing at our factory for a variety of parameters: airflow, sound, vibration, and air-leakage, to name a few. We can provide certified technicians for jobsite installation and commissioning, drawing on a force of more than 5,000 technicians in over 500 locations worldwide. Project-management services are also available.

For air-handling units designed to meet your demanding requirements, call your nearby Johnson Controls representative.

Powerful design tools are available to aid system designers.

SOLUTION AHUS ARE AN EASY CHOICE

- Worldwide support and resources
- Powerful design tools
- Backed by factory-engineering team
- Factory validation- and witness-testing
- Project-management services can be provided
- Maintenance and repair services are also available

P.O. Box 423, Milwaukee, WI 53201
www.johnsoncontrols.com

Printed in USA